

Work Experience in School Education

Guidelines

Work Experience in School Education

Guidelines



राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद्
NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING

July 1987
Asadba 1909

P.D. 100T-VSN

© National Council of Educational Research and Training, 1987

ALL RIGHTS RESERVED

- ☐ No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without the prior permission of the publisher.
- ☐ This book is sold subject to the condition that it shall not, by way of trade, be lent, re-sold, hired out or otherwise disposed off without the publisher's consent, in any form of binding or cover other than that in which it is published.
- ☐ The correct price of this publication is the price printed on this page. Any revised price indicated by a rubber stamp or by a sticker or by any other means is incorrect and should be unacceptable.

Publication Team

PRABHAKAR DWIVEDI	<i>Chief Editor</i>	C.N. RAO	<i>Chief Production Officer</i>
D.P. GUPTA	<i>Editor</i>	SURESH CHAND	<i>Production Officer</i>
VIJAYAM SANKARANARAYANAN	<i>Assistant Editor</i>	C.P. TANDAN	<i>Art Officer</i>
		V. B. MESHAM	<i>Asstt. Prod. Officer</i>

Cover: SANTO DATTA

Rs. 2.10

Published at the Publication Department by O.P. Kelkar, Secretary, National Council of Educational Research and Training, Sri Aurobindo Marg, New Delhi-110 016, photocomposed at ARG Graphics Private Limited, B 3/64 Azad Apartments, Sri Aurobindo Marg, New Delhi-110 016 and printed at M/s Rakesh Press, A7/II, Naraina Industrial Area New Delhi-110 028

FOREWORD

The National Council of Educational Research and Training has developed its new framework document for the Ten-Year School titled, *National Curriculum for Primary and Secondary Education—a Framework*. This document is a forerunner of the National Policy on Education, 1986, which incorporates the basic philosophy of the national curriculum into the policy framework. Both the *Framework* and the Policy were developed after a great deal of national debate and deliberations through national and regional seminars and a variety of other modes of interactions and exchange of ideas. These two documents hold the promise of revolutionizing the content and process of school education throughout the country. The Programme of Action document which provides an elaboration of NPE, 1986, has recommended the development of curricular guidelines and exemplar curricular and instructional materials.

In order to provide details of various ideas in the two documents it was necessary to develop curricular guidelines, exemplar curricular frames and syllabi in various areas. Through these materials, the Council would be able to convey more effectively to various levels of educational functionaries the concept of minimum level of learning and the desired approach to curriculum transactions in schools. The guidelines and syllabi in this series include the following:

1. Work Experience in School Education: Guidelines.
2. Exemplar Pre-Vocational Courses under Work Experience for the High School Stage.
3. Guidelines for Developing Curriculum at the Primary Stage.
4. Science Education for the First Ten Years of Schooling: Guidelines for Upper Primary and Secondary Classes.
5. Detailed Syllabus of Science for the Upper Primary Level (11+ to 13+).

6. Detailed Syllabus of Science for the Secondary Level (14+ to 16+).
7. Detailed Syllabus of Mathematics for the Secondary Level (14+ to 16+).
8. Inculcation of Scientific Temper — an Exemplar Material.
9. Guidelines in Syllabi in Mother Tongue at the Lower Primary Stage (Based on the Example of Hindi).
10. Guidelines for Developing Syllabi at the Upper Primary and Secondary Stages (Languages, Social Sciences, Arts, and Health & Physical Education).
11. Syllabi for the Upper Primary and Secondary Stages (Languages, Social Sciences, Arts and Health and Physical Education).

These materials have been developed through several working groups constituted for this purpose by the Council and through the contributions of the faculty of the Council in the entire process. They have been further subjected to close examination and review by the Academic Committee of the Council consisting of the representatives from different states and union territories. The present materials are being circulated to various state governments and other user agencies. It is hoped that the materials will be found useful for guiding the development of instructional materials on a variety of formats and in their effective use in the classroom situations in different parts of the country. The contributions of all the faculty members of NCERT involved in this venture and of those from outside NCERT who have contributed to this great task are gratefully acknowledged.

P.L. MALHOTRA

Director

National Council of Educational
Research and Training

New Delhi

PREFACE

The NCERT document, *National Curriculum for Primary and Secondary Education—a Framework*, and the National Policy on Education, 1986, have accepted the concept of Work Experience to be included as an integral component of education at all stages, particularly school education. In pursuance of the conceptual framework presented in these documents, the Department of Vocationalization of Education has developed the present guidelines and a set of exemplar pre-vocational courses under Work Experience for the high school stage including some for the upper primary stage also. The two documents, though intelligible independently of each other, constitute two sister volumes dealing with the same subject. The guidelines on curriculum and implementation included in the present document have taken into account the earlier recommendations and suggestions of the Council in this area. In addition, a great deal of new thinking has also been generated and is reflected in these documents. An inter-departmental working group of NCERT first developed an approach paper. Many of the implementation strategies were later developed by a Working Group on Work Experience and Vocationalization of Education under the Chairmanship of Prof. Gautam Mathur, Director, Institute of Applied Manpower Research. During the preparation of this document the detailed recommendations made by the National Working Group on Vocationalization of Education under the Chairmanship of Prof. V.C. Kulandaiswamy, Vice-chancellor, Anna University, Madras, were also incorporated. The Faculty of the Department of Vocationalization of Education has contributed in cementing the deliberations of these working groups and finalizing them to bring them out in the present form. I gratefully acknowledge the work done by the faculty members of this department as well as the members of the working groups and committees.

It is hoped that the users, at all levels, concerned with Work Experience programmes in schools, will find these materials useful. The suggestions of readers are welcome and will help us to revise the present materials.

ARUN K. MISHRA

Professor and Head

Department of Vocationalization
of Education, NCERT

New Delhi

CONTENTS

Foreword	v
Preface	vii
Introduction	1
General Objectives	3
Stagewise Objectives	4
Primary Stage (Classes I-V)	4
Upper Primary Stage (Classes VI-VIII)	5
High School Stage	5
Contents	6
Primary Stage	7
Upper Primary Stage	10
High School Stage	12
Higher Secondary Stage	15
Guidelines for the Formulation/Adaption of the Syllabus in WE and for the Preparation of Instructional Materials	16
Activities—Suggested not Prescribed	16
Specific Guidelines	17
Specific Guidelines for Implementation	22
Sharing of Responsibilities	23
State Based Resource Group	23
Support from National Level	24
State and Micro-level Initiatives and Action	24
Target Setting	29
Major Tasks	30
Evaluation of pupils	31

Annexure I	34
Working Group on SUPW/WE	
Annexure II	35
Working Group on Vocational Education	
Annexure III	37
Faculty of the Department of Vocationalization of Education, NCERT.	

Work Experience in School Education

Guidelines

INTRODUCTION

The Education Commission (1964-66) emphasized the role of education as a powerful instrument of social, economic and political change. The Commission concluded that one of the means of achieving educational transformation leading to national development was by linking education to productivity, and this link could be forged by introducing Work Experience (WE) as an integral part of general education. Work Experience aimed at giving the future citizens a keen sense of personal worth, dignity and efficiency and at strengthening in them the desire for self-improvement and social service.

The *Curriculum for the Ten-Year School—a Frame Work* (1976) of the NCERT included Work Experience as an integral component of school curriculum as visualized by the Kothari Commission.

The Review Committee on the Curriculum for the Ten-Year School (1977), which reviewed the above document, recommended Socially Useful Productive Work (SUPW) as a distinct curricular area to provide children with opportunities of participating in social and economic activities inside and outside the classroom, thereby enabling them to understand the scientific principles and processes involved in different types of work. The Committee recommended three phases in the teaching-learning process of SUPW, viz. a study of the world of work through observation and enquiry; experimentation with

materials, tools and techniques; and work practice. The productive manual work situations were to be drawn from the areas of health and hygiene, food, shelter, clothing, culture and recreation and community work and social service.

The National Policy on Education (1986) reiterated the concept of Socially Useful Productive Work and renamed it as Work Experience. In this context it laid down the following as policy statement :

Work Experience, viewed as purposive and meaningful manual work, organized as an integral part of the learning process and resulting in either goods or services useful to the community, is considered an essential component at all stages of education, to be provided through well-structured and graded programmes. It would comprise activities in accord with the interests, abilities and needs of students, the level of skills and knowledge to be upgraded with the stages of education. This experience would be helpful on his entry into the workforce. Pre-vocational programmes provided at the lower secondary stage will also facilitate the choice of the vocational courses at the higher secondary stage.

The above statement provides

- a definition, which underscores the significance of work in the learning process, the need for a product or service emerging out of the work performed, the universality of work in the school system and beyond, and the need for well-structured and graded programmes.
- a clue to the nature of work activities so as to confirm the interests, abilities and needs of the learner.
- a case for increasing the skill level to match the stage of education.
- the purpose of such WE to help in (i) smoother transition to the world of work, and (ii) predisposition to the selection of a particular vocation for a majority of students.

One of the distinctive features of the Work Experience Programme as visualized in the National Policy is the provision of pre-vocational programmes at the high school stage.

GENERAL OBJECTIVES

The general objectives of the Work Experience Programme are as follows :

Knowledge and Understanding

To help the child

- identify his needs and those of his family and community in respect of food, health and hygiene, clothing, shelter, recreation and social service.
- acquaint himself with productive activities in the community;
- understand facts and scientific principles involved in various forms of work;
- know the sources of raw materials and understand the use of tools and equipment in the production of goods and services;
- understand the utility of productive work and services to the community;
- understand the needs of a technologically advancing society in terms of productive processes and skills;
- understand the process of planning and organizing productive work;
- conceptualize his role in productive situations;
- develop an awareness of social problems;
- develop his abilities for self-evaluation of his performance.

Skills

To help the child

- develop skills for the selection, procurement, arrangement and use of tools and materials for different forms of productive work;
- develop his skills to observe, manipulate and participate in work practice;

- develop skills for the application of problem-solving methods in productive work and social service situations;
- develop his skills for greater productive efficiency;
- enhance his working competence sufficiently so as to enable him to earn while he learns;
- use his creative faculties for devising innovative methods and materials.

Attitudes and Values

To help the child

- develop respect for manual work and regard for manual workers;
- inculcate socially desirable values such as self-reliance, helpfulness, cooperativeness, team-work, perseverance, tolerance, etc.;
- develop proper work ethics such as regularity, punctuality, honesty, dedication, discipline, etc.;
- develop self-esteem through achievements in productive work and service;
- develop a deeper concern for the environment and a sense of belonging, responsibility and commitment to the society.

STAGewise OBJECTIVES

Primary Stage (Classes I-V)

At this stage of education, the objectives of WE come very close to those of education in general. The young children enjoy participation in a large number of activities at school, at home and in the community rather than being engaged in bookish education alone. Therefore, emphasis should be laid on the development of good health, environmental sanitation and beautification practices through WE activities.

One of the aims of education at this stage should be to develop awareness in the child about the world of work through visits to service situations or through participation in productive work.

The development of desirable attitudes, values and habits of work, such as appreciation of manual work and regard for manual workers, cooperativeness and team-work, regularity, punctuality, discipline, honesty, creativity, persistence etc. can be achieved through well organised, self-expressive service and production-oriented activities.

Upper Primary Stage (Classes VI-VIII)

At this stage, children are sufficiently mature to carry out strenuous work with higher skills which may require closer coordination of hand and brain. They should be encouraged to participate more intensively in production processes by undertaking well-designed projects in selected areas of human need which will mark the beginning of pre-vocational* orientation to the WE programme.

The children should also be able to relate their knowledge of facts and the scientific principles involved in various types of work. They should learn to apply problem-solving methods and be able to identify and use the tools, raw materials and equipment in a scientific manner.

Observation, manipulation and work practice should be the methodology to achieve the stipulated goals. The process of inculcation of positive attitudes and values should be continued. Besides, the children should develop a deeper concern for the environment and a sense of belonging, responsibility and commitment to the community.

High School Stage (Classes IX-X)

This stage may be regarded as a linear extension of the upper primary stage in respect of aims and goals. However, work practice should assume a much greater importance. Through the WE programme children should be able to contribute

* This refers to predisposition both to the world of work and intensive study of the productive process (inclusive of services and maintenance) as well as to the vocational education and technical training imparted at the post secondary stages to which a sizeable segment of student population is envisaged to be diverted.

meaningfully to environmental improvement and conservation, reduction of pollution, and development of proper nutrition, health and hygiene in the community.

At this stage, pre-vocational orientation should be clearly perceptible as far as the curricular design is concerned; the development of vocational aptitudes or interests should be given sufficient importance. These pre-vocational programmes will facilitate the choice of vocational courses at the higher secondary stage. Even for those who opt for the academic stream at the +2 stage, provision for enhanced participation in work would add a much desired dimension to academic education and produce better-educated young people in general, which the academic courses alone would fail to achieve.

CONTENT

The content at the primary stage will have three components; environmental studies and application; experimentation with materials, tools and techniques; and work practice. At the upper primary and high school stages, the content will comprise of two parts, i.e. essential activities for the satisfaction of day-to-day living needs of the children, their families and communities and an Elective Programme of productive work and services, repeated practice of which would result in some remuneration in cash or kind. The component of work practice is very important, especially for the elective programme of productive work and services at the upper primary and higher stages. However, weightages for it would vary from stage to stage. It is suggested that the productive work practice component at the primary, upper primary and high school stages should be given a weightage of 20,50,70 per cent respectively, depending on the total time available to this curricular area.

Further, the actual selection of activities/projects would depend upon the availability of natural, physical and human resources in the locality and the socio-economic background of the particular community. Care should be taken to see that adequate coverage is given to many types of activities or projects and that they result in the production of goods and services.

Primary Stage

At the primary stage the WE activities have to be simple and enjoyable. They should be in the form of environmental studies, involving observation of work situations and elementary processes of work, and preparation of handiwork from indigenous and low-cost materials through interesting self-expressional activities. Activities should be so selected that they help the children derive joy in giving shape to their imagination. Activities should also offer scope for experimentation with materials and tools and participation in activities which involve helping the elders in diverse work situations, sharing work in group situations as well as in fulfilling individual responsibilities. In the selection of activities, special care should be taken to select those that are suitable for their level of maturity, satisfy their curiosity and have potentiality for developing desirable work and social values.

Further, each activity may comprise of three dimensions, i.e., (i) observation of work situations and identification of problems; (ii) participation in work situations and converting waste materials into useful or beautiful objects; and (iii) preparing useful/beautiful articles in a large number.

Environmental Studies and Application

These activities should be such that they lead to the development of self-reliance in meeting day-to-day needs and to the improvement of the environment. Some of the specific self-reliance and environment related activities under various need areas are :

1. Participation in the sanitation, maintenance and beautification of home and school under supervision.
2. Supply and arrangement of drinking water.
3. Joining elders in environmental sanitation programmes such as removal of garbage, digging of drains and soak-pits for draining out stagnant water, and clearing of unwanted vegetation.
4. Observation of garment-cleaning and stitching operations at home, in a laundry, in a tailor's shop, in a garment factory.

5. Washing of ribbons, socks, handkerchiefs, undergarments, towels, dusters; stitching buttons; and polishing shoes.
6. Helping elders in the maintenance of a garden by watering, weeding, pruning, mowing, etc.
7. Visiting kitchen gardens and agricultural farms and observing traditional practices and modern methods of agriculture.
8. Helping elders in farming operations (sowing, watering, weeding, harvesting), in cooking food, in the care of younger children and the sick, and in household work.
9. Visiting work places and observing potters, carpenters, *dhobis*, *pattal-biri*-mat weavers, cloth-weavers, construction-workers, tailors, bakers and confectioners at work.
10. Visiting and observing the working of a post office, bus-depot, railway station, aerodrome, dispensary, hospital.
11. Participation in different types of cultural and recreational activities such as celebration of festivals, puppet-shows, folk music and dances, community singing, etc.

Experimentation with Materials, Tools and Techniques

These activities should relate to a variety of materials used for various work practices and should help develop an elementary level of skill in the use of tools and techniques. A list of such activities is given below.

1. Handling of materials such as clay, paper, cardboard, bamboo, leaves, cotton, cloth, etc. for making toys and items of daily use.
2. Handling of gardening and agricultural tools such as *khurpi*, sickle, hand-hoe, watering-can, water-pipe and pruner, etc.
3. Safe handling of knife, needle, scissors, knitting needles, etc.

4. Acquaintance with and habit of handling various types of cleaning and washing materials such as soap-powder, soap-flakes, soap-cakes, liquid soap, soap-nuts, cleaning powder, etc.
5. Acquaintance with and skill in the use of materials for preparing meals.
6. Acquaintance with and skill in the use of colours—dry, water and oil—for making drawings, scenery, charts, etc.
7. Acquaintance with different techniques of making garlands and bouquets.
8. Acquaintance with a variety of materials used in making kitchen wares, such as clay, china clay, plastic, iron, aluminium, copper, brass, stainless steel, etc.

Work Practice

Students engaged in work practice constantly use their hands. After repeated practice, each activity performed by the children should lead to the production of goods or services. A list of such activities is given below :

1. Self-expressional activities : Making designs on paper, such as ink designs, prints with thread, spatter prints, vegetable prints, marble paper, etc.
2. Paper work : Making greeting cards, book marker, flags of different countries, standing animals, decorative pieces, geometrical models, gliders, floating figures, boomerang, whistle, buntings, *phirkee*, office envelope and postal envelope.
3. Cardsheet and cardboard work : Making articles such as tumbler, funnel, pencil/pen stand, cardboard box, letter holder, dust bin, flower basket, file cover.
4. Clay modelling : Preparation of toys including dolls and models; collection of materials such as leaves, shells, flowers, seeds, feathers, etc.
5. Food and drinks : Preparation of drinks such as tea, coffee, *neembupani*, squash, *sharbat*, etc; preparation

of simple food items such as rice, *chapati*, *dal*, soup, etc.

6. Raising plants in pots.

Upper Primary Stage (Classes VI-VIII)

Essential Activities

The nature of activities selected for the purpose should be such that they can be performed by all the schools offering upper primary stage education. By and large, the activities should lead to the improvement of nutrition, health, sanitation, productivity and economic status of the community. These activities could be selected from the following list which is only suggestive.

1. Maintaining cleanliness at home and in the neighbourhood.
2. Cleanliness and maintenance of the classroom and school premises.
3. Keeping sources of water in the community safe and clean.
4. Looking after sanitary disposal of waste material during festivals.
5. Washing and ironing of school dress.
6. Helping in the cleaning of poultry house/cattle shed in rural areas.
7. House decoration on special occasions such as festivals, marriages, birthdays.
8. Organizing community service programmes for road repair, tree plantation and cleaning of surroundings in a village/slum area.
9. Helping parents in looking after younger children in the family.
10. Maintenance of personal and household accounts, payment of household bills (electricity, water, newspapers, etc.).
11. Making small purchases for self and family.

12. Coaching primary school children including younger brothers and sisters who are weak in studies.
13. Measuring height and weight of school children and recording them.
14. Preparation of charts and posters indicating causes, symptoms, treatment and prevention of common diseases such as malaria, influenza, diarrhoea and dysentery.

Elective Programme

At the upper primary stage of education the learning and mastery of skills become more important than at the lower primary stage. At this stage a large number of activities in related areas may be put in such a sequence that they assume the form of a project to be completed over a given span of time ranging between one to three years. The choice of activities and projects should be such that the needs of the students and the community are met keeping in tune with the maturity level of children of a relatively mature group of 11 to 14 years. A suggestive list of such projects is given below :

1. Maintenance of school premises—whitewashing of school building; polishing of doors, windows and furniture; caning of chairs, and repair of school furniture.
2. Maintenance work at home—whitewashing, polishing, repairing, etc.
3. Care of clothes—preparing, washing soap and detergent powder; washing of cotton and terricott clothes, ironing, mending and storing of clothes.
4. Preparation of stationery items such as exercise books, practical exercise books, drawing notebooks, etc.
5. Book-binding—stitching, cutting, cover page printing, etc.
6. Repair of cycle/stove and simple domestic appliances.
7. Making of chalk, ink, duster, brooms, waste-paper baskets, dustbins for use in the school.

8. Cooperative management of school canteen.
9. Making of toys, puppets, etc. with waste materials for home decoration or sale.
10. Making of cardboard boxes, wedding and greeting cards, etc.
11. Plumbing—changing washer, plugging leak, fixing a tap.
12. Garment making—ginning, spinning, weaving, cutting, stitching.
13. Preparation of wall plates, and decoration pieces out of plaster of paris.
14. Woodwork—making of name plate, book rack, wooden tray, side table, etc.
15. Raising ornamental plants in pots.
16. Growing medicinal plants.
17. Raising vegetables in small pots.
18. Preparing plants through vegetative propagation—cutting, budding, grafting, etc.
19. Making of fruit juices, syrups, and squashes, etc. for household consumption and sale.

High School Stage (Classes IX-X)

Essential Activities

The nature of essential activities will remain the same as proposed for Classes VI to VIII. Only their complexity will increase by adding more dimensions with a definite pre-vocational focus and on-the-job work. However, some more activities can be considered at this stage.

1. Use of bus and railway time tables.
2. Acquaintance with the working of neighbouring post- and telegraph office and bank and formalities for opening an account.
3. Reception work in school.

4. Preparation and distribution of mid-day meal/snacks in composite schools.
5. Preparation of teaching aids and equipments for self and lower classes.
6. Helping school authorities in organizing exhibitions, picnics, tours and excursions, etc.
7. First aid activities like counting of pulse, taking of temperature and bandaging of wounds after their cleaning.
8. Helping traffic police in regulation of traffic.
9. Plantation of shady/fuel/ornamental/avenue trees.
10. Preparation of family budget and maintenance of daily household accounts.
11. Acquaintance with common fertilizers and pesticides and their application with appropriate equipment.
12. Acquaintance with common pests and plant diseases and use of simple plant protection chemicals and equipment.
13. Handling farm animals for feeding, washing or general examination.
14. Preparation of soak-pit for collecting liquid refuse from the cattle shed.
15. Studying the nutrition and health status of people in a village/city/slum/tribal area.
16. Helping in community health programmes and enhancing the nutrition, health and environmental status of the community through door-to-door contact programmes.
17. Digging trench latrines during fairs and festivals and maintaining them hygienically.
18. Participation in adult literacy programmes.
19. Helping in child-care in creches.
20. Volunteer work in hospitals and during fairs, floods and famines and in accidents, etc.

Elective Programme

Work practice at this stage may take the form of projects with sequential activities relating to vocations in production or service sector. Each student should be required to take two projects in and outside the school, depending upon the availability of resources and time. Students should select projects in such a way that at least two need areas are covered. The projects should provide vocational orientation.

A list of projects is given below :

1. Raising of flowers, vegetables, plants and their seedlings in nurseries.
2. Repair and maintenance of equipment for plant protection.
3. Prefabrication of irrigation channels.
4. Developing plants by vegetative propagation—budding, grafting, cutting, layering etc.
5. Raising poultry birds: (i) for eggs, (ii) for table purposes.
6. Making bakery and confectionery products.
7. Food preservation—making of jam, jelly, tomato ketchup, pickles.
8. Projects relating to non-conventional sources of energy—sun, wind, tides, biogas, etc.
9. Cookery skills.
10. Bee-keeping, bottling and marketing of honey.
11. Silkworm rearing
12. Mushroom cultivation for consumption, preservation or sale.
13. Fish rearing in small ponds.
14. Post-harvest technology and safe storage of food grains.
15. Use of bacterial fertilizers.
16. Preparation of milk products.
17. Plant protection against pests and diseases.

18. Soil testing and reclamation measures.
19. Preparation of stationery items such as files, file-boards, registers, writing pads, stamping ink, etc.
20. Tying and dyeing and screen-printing as commercial ventures.
21. Garment making.
22. Repair and maintenance of domestic electrical gadgets.
23. Preparing electric extension boards for use in home/school or for sale.
24. Motor-winding as a trade.
25. Photography—commercial.
26. Preparing paper out of waste paper.
27. Preparation of decoration pieces of a more sophisticated nature out of plaster of paris.
28. Mat and carpet weaving.
29. Doll-making.
30. Hand embroidery.
31. Typewriting with adequate proficiency.
32. Stenography.
33. Preparation of nutritioius snacks.
34. Preparation of a variety of teaching aids for use in school.
35. Plumbing.
36. Running a cooperative store.
37. Running a students' bank.
38. Running a book bank.

HIGHER SECONDARY STAGE (CLASSES XI-XII)

At the higher secondary stage, in the selection of projects several alternatives may be provided to students. While some

schools may provide a compulsory programme of non-formal education, adult education or several other projects in the area of community services to their students, others may like to offer certain inter-disciplinary Work Experience projects which may essentially be subject based. These would highlight such applications of science or social studies which would be in tune with the concept of productive work or services. Projects on cooperation, leadership and entrepreneurship may also be offered in this area. The programme of the +2 stage WE may be visualized as a linear extension of the pre-vocational programme offered at the preceding stage. In this respect if the continuity is maintained from high school to the higher secondary stage it may be conceived that sufficient pre-vocational experiences gathered in a particular trade can equip the individual to a fair degree in regard to his vocational competencies.

GUIDELINES FOR THE FORMULATION/ADAPTATION OF THE SYLLABUS

Activities—Suggested, not Prescribed

The content of WE programme is to be based on the needs of the child on the one hand, and on the resources available in the community and the facilities available in the school on the other. Since these will differ from place to place, no fixed programme can be prescribed for all the schools in an area, let alone in a state or in the country as a whole. It is in keeping with this realization, that a suggestive list of activities rather than a prescriptive 'syllabus' has been recommended for this subject at the national level.

Besides including WE activities of a wide variety for all the stages which, however, are not exhaustive, the suggestive lists also include pre-vocational courses as a part of the WE programme for the high school stage. These are intended to help the states in developing a balanced curricula and to indicate the kind of content which can go into the syllabi after passing the test of relevance to state needs and resources.

The lists have been prepared for different stages i.e., primary, upper primary and high school and not for individual classes. Therefore, contents under each area/item will have to be elaborated and specified for different classes. If an activity/project is to continue over a span of more than one year, the contents will have to be graded over successive classes. Thus selection, modification, elaboration and regradation of content from these will constitute the process of its adaptation to the needs of the states. WE being essentially locale-specific, although a good deal of commonality is possible, the syllabi in schools/states should give ample scope for local variation in content, which should ultimately be determined by the district and local-level committees, comprising of school authorities, local community members, representatives of development agencies, professionals and employers. In order to facilitate the process of adaptation of the activities or the syllabus frames to the specific needs in schools, certain specific guidelines/principles, on which the WE curriculum should be based, are stated below .

Specific Guidelines

Decentralized Curriculum Planning

Planning for the WE programme should be a decentralized process. At the national level, only a suggestive syllabus frame for pre-vocational courses has been prepared to ensure relevance to the needs, resources and conditions, which should be followed by the development of a model syllabus by the state. The model syllabus developed by the state should be elaborated into detailed syllabus at the district and local levels. District, taluka and village-level committees should be set up for this purpose by including representatives from various government departments, development agencies and the public. These committees should work at local specific plans and programmes based on local occupations, needs and resources which should be supplied to the schools well in advance.

They should also consider the feasibility of the provision of raw materials and the sale of finished products.

The syllabus outline, prepared by the NCERT, has kept in view the needs of rural, urban, hill and coastal areas. However,

the outline is not exhaustive, and activities or projects found relevant to a state or local needs, should certainly be added.

Selection of Activities

The WE programme centres around six areas of human needs, namely, food, health and hygiene, clothing, shelter, culture and recreation, and social service. A balanced selection of activities in each of these areas may be made according to the educational potential of each activity and the facilities (materials, tools, space, teacher expertise, etc.) and time available for it. A variety of activities should be provided as far as possible so that children can develop self-sufficiency in meeting their needs and discover their vocational aptitudes and interests. In the selection of pre-vocational courses, local traders and occupations should be given prominence. Besides, a balanced distribution of activities over the three dimensions of WE, i.e., Life Skills, Production and Community Service should be achieved in accordance with their importance at different stages of education.

Although the activities will differ from school to school, depending upon its needs and resources, there can be a programme of Essential Activities which should be undertaken by most of the schools. The programme of Essential Activities should include regular and universal participation of children throughout the year. The other programme of productive work and services under work practice at the primary stage, and elective programme at the upper primary and high school stages, should result in the production of goods or services which are saleable or consumable at home, in the school or outside, and which will also provide motivation to students and their parents.

The purpose of Essential Activities is to bring about attitudinal changes and to develop readiness for continued productive work. The purpose of the elective programmes is to give a vocational bias to the WE programme. It may, therefore, require repetition or constant practice according to the time available.

Preparation of Annual Plan

Organization of Work Experience in a school system which is poorly equipped for the purpose requires a lot of planning

with respect of scheduling of work based on availability of time, season, human expertise, raw materials, etc. for the whole year for proper implementation. In view of this, preparation of annual plan or scheme of work for the entire duration classwise and monthwise would be necessary.

For preparing the plan the number of actual working days during the year or semester is calculated and the total number of periods available for Work Experience is worked out. This, however, will vary from state to state as the weightage given to Work Experience varies. Later the activities selected under Work Experience, based on specific requirements, are distributed weekwise and monthwise. The methods and techniques of doing the work are also identified. These include individual or group work, demonstration, field visit, on-the-job experience, problem solving approach, etc. The entire information can be filled in the following proforma which should be by-and-large ready within two weeks of commencement of the class work.

PROFORMA : SCHEME OF WORK FOR THE YEAR

Class.....

<i>Month</i>	<i>Week</i>	<i>No. of periods available</i>	<i>Activities to be covered with periods allotted</i>	<i>Methods of doing the activity</i>
July	I			
	II			
	III			
	IV			
August	I			
	II			
	III			
	IV			
September	I			
	II			
	III			
	IV			

Similarly, details are worked out for the rest of the months in an academic year.

Teaching-Learning Process

The teaching-learning process in WE has three phases : study of the world of work through observation and inquiry;

experimentation with materials, tools and techniques; and work practice. The first two are concerned with preparation for actual participation in productive work and services, and the third may lead to production.

In primary classes, study of the world of work through environmental studies should be related to the exploration of productive manual work and service situations at home, in schools and in the community through observation and enquiry. The focus will be on the variety of productive work and services around, workers engaged in them and the materials and tools being used. In the upper primary classes, the exploration of work can be more scientific and the social aspects of work can be further highlighted. In the high school classes, children will be expected to conduct work-study more systematically and to submit at least two reports.

Experimentation with materials, tools and techniques at the primary stage should be restricted to those that are plastic and pliable in nature. The end product may be creative, self-expressional work or some usable things. Services should be such that children enjoy participating in them. At the upper primary stage, manipulation of harder materials like wood and metal may be introduced. Productive work in these classes will take the form of projects involving higher skills and precision. Services should also be of a harder and a more strenuous type. At the high school stage, related knowledge may be dealt with in greater detail.

Work practice at the upper primary level would involve the mass production of some items prepared earlier under experimentation and also the performance of some services which can be assessed in terms of some return in cash or kind. At the higher school stage, one of the two selected projects should be from among the on-going activities in the community, which require greater and constant attention. The second project can be of an ad hoc or temporary type. At this stage, the return from the work performed should be comparable to the market-rate as far as possible.

In order to realize the educational objectives of WE, it is necessary to follow the problem-solving approach. Children should be made aware of the problems related to their needs and the work that should be undertaken to satisfy these needs.

They should be led to arrive at the solution of these problems by discussing the materials, tools and techniques for performing work and services, and by undertaking appropriate work.

WE should not be performed mechanically, and must include planning, analysis and detailed preparation at every stage, so that it is educational in character. Improved tools and modern techniques should be adopted in the performance of WE activities so that it leads to the understanding of a progressive society based on technology.

Allocation of Time

It is stipulated that in Classes I-V, at least eight periods a week, of 45 minutes duration each, will be allocated for WE. In Classes VI to X, a minimum of six periods per week should be allocated besides the out-of-school hours for productive work and community service. Wherever possible, more time may be allocated to WE in the school curriculum itself. Block periods may also be arranged, if necessary, for productive work, social service or visits to work-places.

Facilities for WE

Two types of facilities are required for the implementation of the WE programme, namely, (1) Physical facilities consisting of accommodation, land, workshop, tools, equipment, raw materials, and (2) teacher expertise. Some physical facilities as spelt out above will be required for productive work, for which resources of the community may be used. However, experience has shown that all students cannot be engaged regularly and continuously with the help of community resources alone. Besides this, the problem of road safety and transport is also there. Hence, schools should gradually develop their own resources, beginning with the provision of minimum facilities, a list of which with specifications should be prepared by the state and circulated among the schools. Provision should also be made for safe custody of materials, tools, equipment and finished goods.

Teachers for WE

It would be appropriate to utilize community resources for the effective implementation of this programme. Although it is

expected that all teachers should work as WE teachers, a large number of activities may require specialized personnel. There should be provision in this programme for the involvement of experts from the community. This will be particularly necessary to provide pre-vocational orientation at the high school stage. The involvement of all teachers in this programme would logically imply their proper orientation and training in this area.

Use of Community Resources

Utilization of community resources for effective implementation of the WE programme is quite necessary. While it may be necessary to allocate minimum resources to schools for introducing pre-vocational courses, especially at the high school stage, advantage may also be taken of the local business enterprises, workshops and work-centres for work-site training.

Development of Instructional Material

The nature of WE, which is concerned with 'doing-learning', is different from that of other subjects which are, by and large, academic in nature. Therefore, the traditional type of textbooks meant for the subject areas or teaching of crafts will not be helpful in this area. The problem-solving approach and the integration of knowledge relating to different subject areas with WE demand a new type of literature for the guidance of teachers. Instructional materials in the form of curriculum guides, handbooks, source-books, manuals, resource-units and doing-learning units will play a very vital role in the implementation of the programme of WE. Teachers' handbooks and source-books on the WE activities/projects will especially be necessary in the immediate present, along with the specimens of detailed materials such as manuals and doing-learning units.

SPECIFIC GUIDELINES FOR IMPLEMENTATION

The programme of Work Experience as detailed in *The Curriculum for the Ten-Year School—a Framework* published by NCERT (1976) on the basis of the recommendations of the

Kothari Commission has been implemented in various states of the country with varying degrees of success at different stages in different parts of the country. It has been implemented throughout the country under different nomenclature such as Socially Useful Productive Work (SUPW), Craft, Work Education, Life Oriented Education, etc. By and large, the programme has left a great deal to be desired in terms of its proper implementation in schools in spite of the policy support provided to it since Basic Education and the strength of pedagogical foundations on which it stands. There is, therefore, a need to provide a definite structure to WE as applicable at different stages of education so that it leaves less scope for varied conceptual interpretations and the programme renders itself more implementable than at present.

Sharing of Responsibilities

The policy through its paragraph on 'A Meaningful Partnership' referring to the concurrency clause of the Constitution lays down the spirit and ground rules for its successful implementation. While the states have to actually execute the educational programmes the national Government, among other things, has to ensure the quality and standards and monitor the educational requirements of the country besides striving for excellence.

The Centre-state partnership so visualized implies building up of greater capabilities by the state governments to meet the specific resource needs, administrative and supervisory requirements, training and establishment of desirable linkages within the state. For interaction with the national level R & D support system a resource group of experts will have to be created to carry forward the work in collaboration with national level institutions, more specifically, NCERT. Similarly, the administrative linkages between the concerned bureau of the MHRD at the national level with the counterpart state directorate will have to be strengthened.

State Based Resource Group

Since the R & D support available to the schools in various states has been diagnosed to be the weakest component for

which a planned intervention is called for, considerable strengthening would be necessary both at the national and the state level in this regard. Depending on the size and population of the state, its cultural and geographical variabilities and characteristics and such other factors, the size of the resource group would also vary. Drawn from other institutions on temporary basis or on deputation or employed as permanent staff in the Directorate/SCERT the nature and size of the resource group will be determined by the state government. While as an immediate mode of action temporary arrangements may be resorted to, for medium and long range planning more permanent structural arrangements will have to be made. The planning will be done so as to derive maximum support from the system created for the management of the vocationalization programme. The school system at various levels will work in close coordination with other supportive institutions/community/departments/agencies.

Support at the National Level

The NCERT constituent units, both at the national and regional levels will have to be qualitatively and quantitatively augmented to meet the needs and expectations of the state governments. The NCERT shall work out such requirements keeping in view the phasing visualized through the process of internal reorganization and allocation of resources keeping the priority needs of this area in mind. A separate set up, other than what is suggested for the management of vocational education may not be necessary for the immediate future but the situation may be reviewed after some experience is gained in the process of coordinated implementation of the Policy.

State and Micro-Level Initiatives and Actions

More intensive planning of the Work Experience programme will have to be done at the state level, separately for each state. The stage of development, cultural variabilities, etc. would place greater premium on the micro-level planning and implementation. However, some guidelines will be available from the NCERT by way of sample curricula and instructional materials for various stages as well as for programme organization and

implementation. A few specific details as applicable to each stage of education are presented below to serve as indicators for local initiatives and innovations. A great deal of flexibility and adaptability will have to be interwoven into these guidelines to make the programme a success.

Primary Stage (Grade I-V)

At the primary stage, a variety of activities should be made available to the children. The schools can be provided with an open list of activities with a great deal of variety suited to the intellectual and physical development of children and the Head of the Institution should exercise adequate freedom to select a set of 40 to 50 activities which should be conducted in the time allocation provided at this stage, which should be of the order of 20% of the total instructional time. The choice of activities should also depend on the interest of children and parents for its greater acceptability amongst them.

The proposed District Institute of Education and Training should be assigned the task of training and re-training of teachers of the primary stage of the district so as to enable them to execute the programme of WE in their respective schools. As a long-term planning, however, the curriculum for the pre-service courses for the lower stage should be suitably redesigned to train the teachers to take care of WE activities.

In conducting the WE programme in schools the teachers should be encouraged and enabled to make use of the resources, both physical and human, in the community. In this regard, the proposed school complexes can also play a very important role. If each teacher is trained in five activities with the desired competence to have these conducted by children in a cluster of schools where there are ten teachers, there would be a pool of expertise to take care of nearly fifty activities for the benefit of children of each school in the complex. Since all teachers of a school are expected to participate in the WE programme this type of arrangement will overcome the difficulty of skill competence amongst the subject teachers which limits the execution of these programmes at present. Certain logistic problems may be encountered in the beginning but these will have to be solved through local participation and involvement.

In case of single-teacher schools which constitute a sizeable proportion at present, the teacher may not divide his students into five classes for the purpose of conducting the activities. He may constitute two to three groups of children at any particular time which work on the corresponding number of activities in which older children can guide the younger ones in conducting the activities. In such situations also, the teacher may have to depend considerably on the community personnel to be drawn on part-time basis for imparting education in work practices. This again is an area of local initiative and intervention.

Upper Primary Stage (VI-VIII)

At this stage sequenced activities must be coupled with suitably designed 'Earn while you Learn' schemes where the production of certain items could be undertaken on the pattern of the Madhya Pradesh experiment. It may be cautioned that the Earn while you Learn programme may not be made obligatory for all children in a given class but should be optional for those who would like to benefit monetarily by producing certain saleable goods. For this component of the WE programme one to two hours every day may be provided beyond school hours when the work could be undertaken under supervision of the school as a part of the total school activity. However, a time allocation of 1/8 to 1/6 of the total instructional time within the school should be compulsorily devoted to WE activities by all children of all schools.

The need for giving more intensive skill component to the WE programme at the upper primary stage emerges out of the concern for a large number of children who either drop out or opt out of the educational system after eight years of general education and seek their absorption in the world of work and services in the community more or less on a local basis, migration not being a common phenomenon for this particular age-group. In view of this the choice of areas of work should relate closely to the production processes existing in the vicinity of the schools and should provide the subject matter of study under WE. The students should be made well aware of one or more such production processes where they study various aspects relating to these production processes. For example, the cultivation of

vegetables may involve not only the study and practice related to the cultivation of vegetables but also their storage, preservation and marketing of the products to some extent. Such a participation in the productive activities in the community would prepare the individual for better participation with greater productivity and it will also provide proper orientation to children so that they can identify their own talents in regard to academic or vocational pursuits. Even for those children who continue their studies beyond grade VIII, the knowledge of the technicalities involved in various productive ventures in the society would prove immensely useful from the standpoint of national development in a larger context.

For those students who continue beyond grade VIII, the pre-vocational courses shall provide continuing courses but the course design should be such that it provides a complete package at the high school stage of education. The students may like to continue or take up new assignments after they complete the upper primary stage of education in the high school.

Agriculture being the backbone of the country's economy the list of WE programmes will have to be fairly exhaustive in this area, not only to include traditional areas of crop production, vegetable production, irrigation and fertilizer etc., but also the components of the scientific processes behind high productivity in respect of various crops, the role of machinery and farm equipment, the use of proper plant protection measures and a variety of services that could be organized for the benefit of farmers for which earning could be visualized for those who offer such services. There has to be a considerable degree of flexibility in terms of relevance of the area selected for study. In view of the greater depth of such courses than those at the earlier stages it may be important to establish proper linkages with various developmental departments, the community, banks and industries.

Project activities in the area of business and commerce can also be introduced at the upper primary stage which may cover store handling, running of certain businesses and office skills. Besides, a large number of projects should be drawn from the area of home science and technology as would be appropriate for this level of education.

The Working Group on Vocationalization of Education

(1985) has visualized committees at the district level for implementation of vocational courses. These committees may coordinate the work in the area of WE also at the district level. The concept of school cluster as presented with reference to the primary stage would also be applicable to the upper primary stage. However, for this stage each teacher in a cluster may be given more intensive training in two skill areas so that a particular school would have the benefit of expertise in nearly 20 areas. Each school may offer one to five projects depending on the potential of the area, the background of the teachers, the facilities available in the school and in the community and other local considerations. Here again the Head of the School should be given considerable freedom in the selection of activities for his school.

It would be extremely important to prepare instructional materials for teachers. Besides, a wide variety of modular materials should also be prepared to cover each course or project which would be for the use of students and would have details of theory and practice in an intergrated manner.

It is important to mention that for this level of education the hazardous occupations should be avoided and safety precautions should be highlighted wherever necessary.

High School Stage (IX-X)

The approach suggested for the upper primary stage should be extended to the high school stage of education but with a definite pre-vocational focus. On-the-job work site training should be given more importance at this stage. Such attachment programmes should be conducted during vacations. This will enable the students to acquire more intensive training through their participation in the production processes directly. While pre-vocational courses may start only at the high school stage of education others can provide a continuity with the upper primary stage. In programmes which offer continuity for a period of five years it may be expected that considerable vocational competence can be developed in a student who would be in a better position for being gainfully absorbed in the community at an appropriate point.

At this stage each student may have only one project of a

pre-vocational course but more than one closely related areas may be grouped together if the time expected to be spent on each so permits.

It is important to allocate sufficient amount of instructional time in schools to WE and to make provision for the Earn while you Learn programme at this stage also in continuation with the upper primary stage.

It would be important to obtain the services of part-time teachers on a regular basis who could provide the necessary expertise for theoretical and practical instructions in many of the technical areas. It would also be important to involve the employers and the consumers of the manpower in various related sectors in the process of curriculum development for this stage.

Higher Secondary Stage (XI-XII)

The concept of WE should be extended to the higher secondary stage of education. It would be a compulsory subject in addition to the language(s) and other electives which the students might opt for. The time allocation may be nearly 15% for this curricular area.

Depending on the alternative selected by the school, the provision of full-time and part-time teachers will have to be worked out. In some situations it may be possible to involve the concerned subject teachers for subject based inter-disciplinary projects. For the projects relating to education and community services also the entire school faculty may collectively take up the task of executing the programme.

Target Setting

Proper introduction of WE as the backbone of the educational transformation as visualized by the Policy is a qualitative metamorphosis which will follow an evolutionary pattern. While the coverage of the programme has to be universal, the phasing will result in the acceptance and percolation of ideas in the classroom situations. The qualitative aspects will also exhibit a great range of variability and attainments against the ideal condition that has been visualized. As such, all schools will be made the target for intervention in a concerted manner. The WE being an integral part of the core curriculum in the framework

of the National System of Education, its introduction, expansion, qualitative improvement and the attainment of excellence will essentially keep pace with all other transformations being planned in this area.

Major Tasks

State Level

1. Creation/identification of state based resource groups.
2. Orientation of officials and key personnel in the states.
3. Creation of DIET with a WE wing in it.
4. Development of detailed curricula, instructional materials and other support materials.
5. Awareness and publicity drive.
6. Training of teachers within school complexes.
7. Establishing linkages of the school with community/institutions/industries/developmental agencies.
8. Provision of requisite basic facilities within the school according to the programme selected.
9. Classroom instructions to be systematized/improved.
10. Continuous monitoring and evaluation for attaining excellence.

National Level

1. Development of sample curricula and guidelines.
2. Development of sample instructional materials/resource books for teachers.
3. Development of orientation packages.
4. Intensive interaction with state based resource groups and consultancy to the states/preparation of state action plan.
5. Periodic review/monitoring and evaluation.
6. Feed back to states.

EVALUATION OF PUPILS

The entire evaluation in the area of WE should be a continuous process from grade I to the end of grade XII. The evaluation should be internally conducted by the teacher/teachers of the subject and should be shown on the performance record of the student. It should take care of theory and practice in an integrated manner but more weightage should be given to the evaluation of actual practical work.

Even at the end of the high school stage of education external evaluation may not be the right approach. However, if the programme is likely to suffer in the absence of such an external evaluation, the practice of examining the students by external examiners particularly drawn from the cluster of schools of which a particular school is a member may provide a better alternative than the conventional type of external evaluation as practised in several other subjects. The evaluation in WE should find the same place of honour and significance as other academic subjects. A phased implementation of modern evaluation mechanism will also apply to WE.

It is expected that in the evaluation of students' performance, while paramount importance will be given to attitudinal development at the primary stage, skill development will receive maximum weightage at the high school stage. This will have to be reflected in the weightage assigned to the dimensions in terms of time and marks. It should be remembered that WE is predominantly a 'doing' subject and, therefore, actual work performance should receive maximum attention here. Some of the important aspects of evaluation are as under :

A. Attitude towards the work :

1. Dignity of labour
2. Respect for work and workers
3. Initiative and interest
4. Social commitment
5. Discipline
6. Cooperation

B. Project or practical work :

- (a)
1. Selection of materials
 2. Selection of tools
 3. Proper use of tools

4. Techniques adopted
5. Accuracy and finish
6. Cost estimation
7. Saleability of the product

or

- (b) 1. Social service
2. Participation in the activity
3. Organization of work
4. Leadership
5. Efficiency in execution

C. **Overall performance**

1. Inter-relation of the subject study with work
2. Preparation for professional or vocational studies

Teachers should keep systematic records of pupils' progress in WE. Apart from the teachers' record, each student may be asked to maintain his own record card as given below :

- | | <i>Class</i> | <i>Section</i> |
|--------------------------------------|--------------|----------------|
| 1. Name | | |
| 2. WE area | | |
| 3. Name of the Unit | | |
| 4. Unit started on | | |
| 5. Unit completed on | | |
| 6. Tools used | | |
| 7. Raw materials used | | |
| 8. Difficulties faced, if any | | |
| 9. Techniques adopted | | |
| 10. Cost of production | | |
| 11. Uses of finished product | | |
| 12. Underlying scientific principles | | |
| 13. Assessment by the teacher | | |
| in terms of grades and marks on : | | |
| (a) Time taken | | |
| (b) Use of tools | | |
| (c) Use of materials & wastage | | |
| (d) Finish | | |
| (e) Discipline and group cooperation | | |
| (f) Safe work habits | | |
| (g) Utility of the product | | |
| Overall assessment | | |
| Grade/Marks | | |
| 14. Signature of the teacher | | |

Students should make necessary entries in the card with the help of the teacher after completion of every unit of activity.

For internal assessment, a well-designed plan of continuous, comprehensive evaluation, using worthwhile evaluative criteria should be prepared. Assessment may be made and recorded after every operational stage of activity/project or its completion.

Annexure I

WORKING GROUP ON SUPW/WE

Department of Vocationalization of Education, NCERT

- | | | | |
|----|--|-----|-----------------|
| 1. | Dr. Arun K. Mishra
Professor and Head
Deptt. of Vocationalization
of Education | ... | <i>Chairman</i> |
| 2. | Dr. A.K. Sacheti
Reader
Deptt. of Vocationalization
of Education | ... | <i>Convenor</i> |
| 3. | Dr. P. Raizada
Reader
Deptt. of Vocationalization
of Education | ... | <i>Member</i> |
| 4. | Shri C.K. Misra
Reader
Deptt. of Vocationalization
of Education | ... | <i>Member</i> |
| 5. | Shri G. Guru
Reader
Deptt. of Vocationalization
of Education | ... | <i>Member</i> |
| 6. | Dr. L.C. Singh
Professor
Department of Teacher
Education, Special Education
and Extension Services | ... | <i>Member</i> |
| 7. | Dr. G.L. Arora
(Represented by
Dr. K.R.P. Singh, Lecturer)
Deptt. of Education in
Social Sciences and Humanities | ... | <i>Member</i> |
| 8. | Dr. (Miss) P. Das Gupta
Reader
Deptt. of Pre-School
and Elementary Education | ... | <i>Member</i> |

Annexure II

WORKING GROUP ON VOCATIONAL EDUCATION

- | | | |
|----|--|---------------------|
| 1. | Dr. Gautam Mathur
Director
Institute of Applied Manpower
Research, I.P. Estate
New Delhi | ... <i>Chairman</i> |
| 2. | Dr. Arun K. Mishra
Professor and Head
Deptt. of Vocationalization
of Education, NCERT
New Delhi | ... <i>Convenor</i> |
| 3. | Dr. R.P. Singhal
Executive Director,
NIEPA, NIE Campus
New Delhi | ... <i>Member</i> |
| 4. | Shri S.G. Patil
Director of Vocational
Education
Visweswariah Main Tower
8th Floor, Dr. Ambedkar Veedhi
Bangalore | ... <i>Member</i> |
| 5. | Shri A.D. Verma
National Alliance of Young
Entrepreneurs
27-Saraswati Bhawan
Nehru Place
New Delhi | ... <i>Member</i> |
| 6. | Shri C.K. Misra
Reader
Deptt. of Vocationalization
of Education, NCERT,
New Delhi | ... <i>Member</i> |
| 7. | Prof. P. Purushothaman
Director
Curriculum and Educational
Media Centre, Anna University,
Madras | ... <i>Member</i> |
| 8. | Prof. P.K.Ghosh
Professor of Commerce
Delhi University
35, Vaishali, Pitampura
Delhi | <i>Member</i> |

- | | | | |
|-----|--|-----|---------------|
| 9. | Shri S.K. Handa
Deputy Educational
Adviser (Technical)
Ministry of Human Resource
Development
New Delhi | ... | <i>Member</i> |
| 10. | Dr. A.K. Sacheti
Reader
Deptt. of Vocationalization
of Education, NCERT
New Delhi | ... | <i>Member</i> |

Annexure III

*Faculty of the
Department of Vocationalization of Education, NCERT*

1.	Dr. Arun K. Mishra	... <i>Professor and Head</i>
2.	Dr. (Smt) S.P. Patel	... <i>Professor</i>
3.	Prof. R.G. Saxena	... <i>Professor</i>
4.	Dr. A.K.Sacheti	... <i>Reader</i>
5.	Dr. P. Raizada	... <i>Reader</i>
6.	Shri C.K. Misra	... <i>Reader</i>
7.	Shri N.P. Bhattacharya	... <i>Reader</i>
8.	Shri A.P. Verma	... <i>Reader</i>
9.	Shri G. Guru	... <i>Reader</i>
10.	Dr. M. Sen Gupta	... <i>Reader</i>
11.	Dr. (Smt) Bimla Verma	... <i>Reader</i>
12.	Dr. A.K. Dhote	... <i>Lecturer</i>
13.	Shri S. Ray	... <i>Lecturer</i>
14.	Dr. D.D. Yadav	... <i>Lecturer</i>
15.	Km. Ritu Verma	... <i>Lecturer</i>